

Attorney Docket No. EIP-5809 (1417G P 446)

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re U.S. Patent Application of
Francis C. Kowalik et al.

Application No. 10/040,908
Confirmation No. 8904
Filed January 7, 2002

For: MEDICAL INFUSION SYSTEM WITH
INTEGRATED POWER SUPPLY AND
PUMP THEREFOR

)
)
)
) Examiner: Cheryl Jackson Tyler
)
)
) Art Unit: 3763

**SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT
PURSUANT TO 37 C.F.R. §§ 1.97 AND 1.98**

Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicants submit herewith Form PTO-1449, "Supplemental Information Disclosure Statement," and a copy of each reference listed therein.

Since this Statement is being filed after a first Official Action on the merits, but before a Final Official Action or a Notice of Allowance, our Check in the amount of \$180 per 37 C.F.R. §1.17(p) is enclosed. Please charge any additional fees associated with this Communication or credit any overpayment to our Deposit Account No. 23-0280. A duplicate copy of this paper is enclosed for that purpose.

Respectfully submitted,

Date: January 14, 2004

By:

Paul J. Nykaza, Registration No. 38,984
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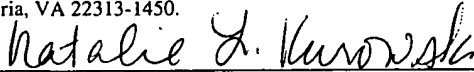
Attorney Docket No. EIP-5809 (1417G P 446)
Application No. 10/040,908
Page 2

CERTIFICATE OF MAILING (37 C.F.R. § 1.10)

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Date of Deposit: January 14, 2004

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Natalie L. Kurowski/190617.1



DERWENT WORLD PATENT SEARCH

DATE: December 11, 2003

TO: AMC
FROM: VAK

FILE: 1417G/P744
SEARCH FOR “

File 351:Derwent WPI 1963-2003/UD,UM &UP=200378
(c) 2003 Thomson Derwent

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1/5/1

DIALOG(R)File 351:Derwent WPI

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009747215 **Image available**

WPI Acc No: 1994-027066/ 199404

XRPX Acc No: N94-020934

Micromechanical flow limiter with multilayer structure, e.g. for medical infusion system - has intermediate diaphragm layer which deflects w.r.t. amount of flowing medium, and blocks flow for large flow amounts
Patent Assignee: JOSWIG J (JOSW-I); UNIV DRESDEN TECH (UYDR)
Inventor: JOSWIG J

Number of Countries: 001 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 4223067	A1	19940120	DE 4223067	A	19920714	199404 B
DE 4223067	C2	19970807	DE 4223067	A	19920714	199735

Priority Applications (No Type Date): DE 4223067 A 19920714

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 4223067	A1		7		
DE 4223067	C2		7		

Abstract (Basic): DE 4223067 A

The micromechanical flow limiter is formed from three layers (1,2,3) fixed on top of one another. The middle layer (2) functions as a diaphragm and comprises a flat structure with a central opening (8). On both sides of the opening, walls (9,10) block or open the flow path.

The flow limiter operates passively, without an actuator. The limiter is controlled by the prevailing pressure differences. In order to increase its reliability, additional micromechanical elements may be coupled to the multilayer structure.

USE - For preventing back-flow in medical dispensing systems. Also for laboratory, motor vehicle, aircraft or space vehicle use or for pneumatic controllers.

Dwg.1/6

Title Terms: FLOW; LIMIT; MULTILAYER; STRUCTURE; MEDICAL; INFUSION; SYSTEM; INTERMEDIATE; DIAPHRAGM; LAYER; DEFLECT; AMOUNT; FLOW; MEDIUM; BLOCK; FLOW; FLOW; AMOUNT

Derwent Class: Q57; Q66; S02

International Patent Class (Main): F16K-007/00

International Patent Class (Additional): F15C-003/04; F15D-001/00; F16K-007/12; G01F-011/28

File Segment: EPI; EngPI

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S2 1 PN='EP 1045146'

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2/5/1

DIALOG(R)File 351:Derwent WPI

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013485779 **Image available**

WPI Acc No: 2000-657722/ 200064

XRAM Acc No: C00-199147

XRPX Acc No: N00-487640

Externally-carried peristaltic pump unit for medicinal dosing is made in two detachable parts so that costly drive and control unit is retained, whilst low-cost, initially-sterile pump unit is disposable

Patent Assignee: MICHELER C (MICH-I)

Inventor: MICHELER C

Number of Countries: 025 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 1045146	A2	20001018	EP 2000108263	A	20000414	200064 B
DE 19916876	A1	20001102	DE 1016876	A	19990414	200064

Priority Applications (No Type Date): DE 1016876 A 19990414

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 1045146 A2 G 8 F04B-043/12

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT

**DERWENT WORLD PATENT SEARCH
FOR**

Page 3

LI LT LU LV MC MK NL PT RO SE SI
DE 19916876 A1 A61M-001/00

Abstract (Basic): EP 1045146 A2

NOVELTY - The pump unit (2) includes pump (11), feed line, outlet line and container (24). Motor, energy source and controls are incorporated in a drive unit (1). These units (1, 2) are joined detachably together, coupling motor and pump.

DETAILED DESCRIPTION - Preferred features: The pump unit is disposable. Inside, the peristaltic pump has rollers and a flexible tube (23) which is one-piece with the feed and outlet lines, extending from the container to a connection (25). The motor is controlled for intermittent drive, from an interchangeable- and/or programmable chip-based control unit with round knob. The detachable shaft connection between motor and pump is slid- or plugged in.

USE - A portable dosing pump for the ambulatory, examples of medicament being: insulin, morphine, L-dopa, heparin and cytostatics.

ADVANTAGE - A more simple, improved construction is achieved, reducing the cost of portable units for more patients. The more expensive drive unit is retained, whereas the pump is disposable. A variety of different types of pump can be used with the same drive unit. Because the pump is disposable, cleaning and sterilization after use is obviated.

DESCRIPTION OF DRAWING(S) - A side elevation reveals hidden detail. An exploded perspective further clarifies the arrangement, in the disclosure.

drive unit (1)
pump unit (2)
pump (11)
container (24)
connection (25)
pp; 8 DwgNo 3/4

Title Terms: EXTERNAL; CARRY; PERISTALTIC; PUMP; UNIT; MEDICINE; DOSE; MADE ; TWO; DETACH; PART; SO; COST; DRIVE; CONTROL; UNIT; RETAIN; LOW; COST; INITIAL; STERILE; PUMP; UNIT; DISPOSABLE

Derwent Class: B07; P34; Q56

International Patent Class (Main): A61M-001/00; F04B-043/12

International Patent Class (Additional): F04B-013/00; F04C-005/00; H02P-007/00

File Segment: CPI; EngPI

?ss pn=ep 808187

S3 1 PN=EP 808187

?t s3/5/1

3/5/1

DIALOG(R)File 351:Derwent WPI

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011332467 **Image available**

WPI Acc No: 1997-310371/199728

XRPX Acc No: N97-257140

Diaphragm-and-disc infusion pump for liquid medication - has disc at end
of rod guided along axis of central aperture in diaphragm by ribs along
interior wall of admission tube

Patent Assignee: CIE DEV AGUETTANT (AGUE-N); CIE DEV AGUETTANT SA (AGUE-N)

Inventor: FREZZA P

Number of Countries: 075 Number of Patents: 015

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9719716	A1	19970605	WO 96FR1906	A	19961129	199728 B
FR 2741808	A1	19970606	FR 9514456	A	19951130	199730
AU 9710350	A	19970619	AU 9710350	A	19961129	199741
EP 808187	A1	19971126	EP 96941089	A	19961129	199801
			WO 96FR1906	A	19961129	
BR 9606819	A	19971230	BR 966819	A	19961129	199807
			WO 96FR1906	A	19961129	
US 5848881	A	19981215	WO 96FR1906	A	19961129	199906
			US 97875479	A	19970924	
JP 10513392	W	19981222	WO 96FR1906	A	19961129	199910
			JP 97520239	A	19961129	
MX 9705725	A1	19980801	MX 975725	A	19970729	200014
AU 716521	B	20000224	AU 9710350	A	19961129	200020
IL 121400	A	20011031	IL 121400	A	19961129	200174
MX 201638	B	20010430	MX 975725	A	19970729	200223
CA 2211718	C	20020305	CA 2211718	A	19961129	200225
			WO 96FR1906	A	19961129	
EP 808187	B1	20021009	EP 96941089	A	19961129	200274
			WO 96FR1906	A	19961129	
DE 69624221	E	20021114	DE 624221	A	19961129	200282
			EP 96941089	A	19961129	
			WO 96FR1906	A	19961129	
ES 2183020	T3	20030316	EP 96941089	A	19961129	200325

Priority Applications (No Type Date): FR 9514456 A 19951130

Cited Patents: FR 2689014

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 9719716 A1 F 14 A61M-005/142

Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU
CZ DE DK EE ES FI GB GE HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV
MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US
UZ VN

Designated States (Regional): AT BE CH DE DK EA ES FI FR GB GR IE IT KE
LS LU MC MW NL OA PT SD SE SZ UG

FR 2741808 A1 10 A61M-005/142

AU 9710350 A A61M-005/142 Based on patent WO 9719716

EP 808187 A1 F A61M-005/142 Based on patent WO 9719716

Designated States (Regional): AT CH DE DK ES GB LI LU PT SE

BR 9606819 A A61M-005/142 Based on patent WO 9719716

US 5848881 A F04B-039/10 Based on patent WO 9719716

JP 10513392 W 14 A61M-005/142 Based on patent WO 9719716

MX 9705725 A1 A61M-005/142

AU 716521 B A61M-005/142 Previous Publ. patent AU 9710350
Based on patent WO 9719716

IL 121400 A A61M-005/42 Based on patent WO 9719716

MX 201638 B A61M-005/142

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CA 2211718 C F A61M-005/145 Based on patent WO 9719716

EP 808187 B1 F A61M-005/142 Based on patent WO 9719716

Designated States (Regional): AT CH DE DK ES GB LI LU PT SE

DE 69624221 E A61M-005/142 Based on patent EP 808187

Based on patent WO 9719716

ES 2183020 T3 A61M-005/142 Based on patent EP 808187

Abstract (Basic): WO 9719716 A

The pump is divided in two parts. One part (2) incorporates a measuring cylinder (3) and piston (4). The other part (7) contacts it with a cavity (10) opposite the open end of the cylinder. A flexible diaphragm (8) is gripped between the two parts. The diaphragm has a central aperture (13) within an elastic ring (12) bearing upon the floor of the cavity.

A disc (14) is fitted into the cavity and touching the centre of the diaphragm. The disc is of smaller diameter and is guided by a rod (15) in the liquid entry tube (9) which has axial ribs (16). The liquid is discharged through a duct (6) opening on to the diaphragm from a point in the first part (2) outside the cylinder.

ADVANTAGE - The disc is of simpler construction and requires no spring for liquid-tightness.

Dwg. 1/4

Title Terms: DIAPHRAGM; DISC; INFUSION; PUMP; LIQUID; MEDICATE; DISC; END; ROD; GUIDE; AXIS; CENTRAL; APERTURE; DIAPHRAGM; RIB; INTERIOR; WALL; ADMISSION; TUBE

Derwent Class: P34; Q56

International Patent Class (Main): A61M-005/142; A61M-005/145; A61M-005/42; F04B-039/10

International Patent Class (Additional): A61M-001/00; F04B-053/10; F04B-053/12

File Segment: EngPI

?e pn=jp 6506849

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DERWENT WORLD PATENT SEARCH
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S4 1 PN='JP 6506849'

?t s4/5/1

4/5/1

DIALOG(R)File 351:Derwent WPI

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009254381 **Image available**

WPI Acc No: 1992-381798/199246

XRAM Acc No: C92-169362

XRPX Acc No: N92-291169

Liquid infusion pump partic. for insulin - has all liquid-contacting elements in disposable part

Patent Assignee: NOVO-NORDISK AS (NOVO)

Inventor: MOLLER-JENSEN J; PLUM T M; POULSEN J U

Number of Countries: 037 Number of Patents: 007

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
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WO 9218175	A1	19921029	WO 92DK125	A	19920414	199246 B
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AU 9216823	A	19921117	AU 9216823	A	19920414	199310
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WO 92DK125	A	19920414				
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EP 580723	A1	19940202	EP 92909898	A	19920414	199405
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WO 92DK125	A	19920414				
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JP 6506849	W	19940804	JP 92508965	A	19920414	199435
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WO 92DK125	A	19920414				
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EP 580723	B1	19951025	EP 92909898	A	19920414	199547
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DE 69205680	E	19951130	DE 605680	A	19920414	199602
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EP 92909898	A	19920414				
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WO 92DK125	A	19920414				
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US 5984894	A	19991116	US 93122436	A	19930924	200001
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US 94321665	A	19941012				
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US 97858941	A	19970520				
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Priority Applications (No Type Date): DK 91694 A 19910418

Cited Patents: 00 27521300; 00 39911900; 00 6297400; 8500523

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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WO 9218175	A1	E	10	A61M-005/142	
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Designated States (National): AU BB BG BR CA CS FI HU JP KP KR LK MG MN
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Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LU MC NL OA
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US 5984894	A			A61M-005/00	Cont of application US 93122436
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				CIP of application US 94321665	
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AU 9216823	A			A61M-005/142	Based on patent WO 9218175
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EP 580723	A1	E		A61M-005/142	Based on patent WO 9218175
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DERWENT WORLD PATENT SEARCH

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Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LI LU NL SE
JP 6506849 W 6 A61M-005/14 Based on patent WO 9218175
EP 580723 B1 E 6 A61M-005/142 Based on patent WO 9218175
Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LI LU NL SE
DE 69205680 E A61M-005/142 Based on patent EP 580723
Based on patent WO 9218175

Abstract (Basic): WO 9218175 A

A pump has a reusable housing and a disposable part (4) containing the reservoir, an energy store for energising the pumping function, and all liquid-contacting elements of the pump mechanism and a pressure sensor in the pump outlet. The two parts have mating couplings.

The disposable part pref. includes a memory registering the amount of liquid left in the reservoir. The re-usable part pref. includes a controller (3), a display (8) a controller setter, a mechanical pump drive and/or a long-life electrical cell to energise the controller. Pref. a programmed ROM element defining the infusion data is carried by a plug (13) which can mate with a socket connected to the controller.

USE/ADVANTAGE - Partic. for infusion of insulin, can be worn comfortably and is extremely simple to operate.

Dwg. 3/4

Title Terms: LIQUID; INFUSION; PUMP; INSULIN; LIQUID; CONTACT; ELEMENT; DISPOSABLE; PART

Derwent Class: B04; B07; P34; S05

International Patent Class (Main): A61M-005/00; A61M-005/14; A61M-005/142

File Segment: CPI; EPI; EngPI

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S5 1 PN='JP 11508465'

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DIALOG(R)File 351:Derwent WPI

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011130836 **Image available**

WPI Acc No: 1997-108760/199710

XRPX Acc No: N97-089994

Disposable cassette for use with liquid drug infusion pump - has cassette body with flexible pump tube, pressure detector membrane, and passive valve having prestress producing forward opening pressure

Patent Assignee: DISETRONIC LICENSING AG (DISE-N); DISETRONIC AG (DISE-N)

Inventor: FRIEDLI K; SKAKOON J G

Number of Countries: 019 Number of Patents: 006

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9702059	A1	19970123	WO 95EP2632	A	19950706	199710 B
EP 836493	A1	19980422	EP 95926397	A	19950706	199820
			WO 95EP2632	A	19950706	
JP 11508465	W	19990727	WO 95EP2632	A	19950706	199940
			JP 97504737	A	19950706	
EP 836493	B1	19991229	EP 95926397	A	19950706	200005
			WO 95EP2632	A	19950706	
DE 69514256	E	20000203	DE 614256	A	19950706	200013
			EP 95926397	A	19950706	
			WO 95EP2632	A	19950706	
US 6106498	A	20000822	WO 95EP2632	A	19950706	200042
			US 98981329	A	19980318	

Priority Applications (No Type Date): WO 95EP2632 A 19950706

Cited Patents: EP 438285; US 3979998; US 4299218; US 4398542; US 4650469;

US 4762518; US 4994035; US 5078683; WO 9304285

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 9702059 A1 E 29 A61M-005/168

Designated States (National): JP US

Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL

PT SE

EP 836493 A1 E A61M-005/168 Based on patent WO 9702059

Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LI LU MC

NL PT SE

JP 11508465 W 24 A61M-005/142 Based on patent WO 9702059

EP 836493 B1 E A61M-005/168 Based on patent WO 9702059

Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LI LU MC

NL PT SE

DE 69514256 E A61M-005/168 Based on patent EP 836493

Based on patent WO 9702059

US 6106498 A A61M-001/00 Based on patent WO 9702059

DERWENT WORLD PATENT SEARCH

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Abstract (Basic): WO 9702059 A

The disposable cassette comprises a cassette body (1) with a flexible pump tube (2) between an inlet (3) for connection to a drug reservoir on the upstream side and an outlet (4) for delivery of the drug to a medical patient on the downstream side.

A pressure detector membrane (18) is operatively connectable to the infusion pump with member to measure the pressure in the fluid circuit of the cassette. There is a passive valve having a pre-stress producing a forward opening pressure of at least 0.15 bar, and an optical code located on the cassette body (1) for recognition of the cassette by the infusion pump.

ADVANTAGE - Provides fail-safe operation esp. in the event of presence air in the fluid path. Is easy to use and inexpensive to mfr.

Dwg.3/9

Title Terms: DISPOSABLE; CASSETTE; LIQUID; DRUG; INFUSION; PUMP; CASSETTE; BODY; FLEXIBLE; PUMP; TUBE; PRESSURE; DETECT; MEMBRANE; PASSIVE; VALVE; PRESTRESSED; PRODUCE; FORWARD; OPEN; PRESSURE

Derwent Class: P34

International Patent Class (Main): A61M-001/00; A61M-005/142; A61M-005/168

International Patent Class (Additional): A61M-005/00

File Segment: EngPI

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DIALOG(R)File 351:Derwent WPI

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002211304

WPI Acc No: 1979-10450B/197906

Pumping medical liquid into patient from reservoir - esp. of resilient silicone rubber, using body movement e.g. breathing to power pump

Patent Assignee: KOKEN KK (KOKE)

Inventor: AKIYAMA T; MUTOU F

Number of Countries: 005 Number of Patents: 007

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
GB 2001534	A	19790207				197906 B
DE 2832800	A	19790215				197908
FR 2398508	A	19790330				197918
US 4215689	A	19800805				198034
GB 2001534	B	19820217				198208
JP 54081693	A	19790629				199117
JP 54024484	A	19790223				199119

Priority Applications (No Type Date): JP 77149098 A 19771212; JP 7789978 A 19770727

Abstract (Basic): GB 2001534 A

Medical liq. is pumped from a reservoir (pref. of resilient silicone rubber) using energy derived from movements of a living patient. Pref. the appts. is attached to an elastic belt which is worn on the waist to expand and contract with the patient's breathing. this expansion is coupled to a ratchet-driven pump by a system of strings and pulleys to rotate the pump rotor. The rotor operates check valves and periodically compresses a rubber tube to pump the liq. from the reservoir.

Appts. pumps liq. into the human body using energy derived from movements of the patient. It provides an alternative to a drip feed.

**DERWENT WORLD PATENT SEARCH
 FOR**

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Title Terms: PUMP; MEDICAL; LIQUID; PATIENT; RESERVOIR; RESILIENT; SILICONE
; RUBBER; BODY; MOVEMENT; BREATH; POWER; PUMP

Derwent Class: A96; B07; P34

International Patent Class (Additional): A41D-001/04; A61M-001/00;

A61M-005/14; F04B-017/04; F04B-045/08

File Segment: CPI; EngPI

?e pn=jp 56500093

Ref Items Index-term

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E5	1	PN=JP 56500095
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E11	1	PN=JP 56500101
E12	1	PN=JP 56500102

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S7 1 PN='JP 56500093'

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7/5/1

DIALOG(R)File 351:Derwent WPI

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002381090

WPI Acc No: 1980-J7558C/198040

Non-pulsating pump for intravenous feed - employs motor to drive valves
and two flexible diaphragm pumps, with pressure equaliser to give desired
flow

Patent Assignee: ARCHIBALD DEV LABS (ARCH-N); AVI INC (AVIA-N); MINNESOTA
MINING & MFG CO (MINN)

Inventor: ARCHIBALD G K

Number of Countries: 009 Number of Patents: 016

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 8001934	A	19800918			198040	B
US 4236880	A	19801201			198051	
BR 8007351	A	19810203			198109	
EP 24431	A	19810311			198112	
JP 56500093	A	19810129			198149	
US 4382753	A	19830510			198321	
CA 1146410	A	19830517			198322	
US 4391600	A	19830705			198329	
EP 90440	A	19831005			198341	
US 4410322	A	19831018			198344	
CA 1155710	A	19831025			198347	
CA 1161693	A	19840207			198411	
EP 24431	B	19850814			198533	
DE 3070973	G	19850919			198539	
EP 90440	B	19851009			198541	
DE 3071180	G	19851114			198547	

Priority Applications (No Type Date): US 7919223 A 19790309; US 7977677 A 19790921; US 80185769 A 19800910; US 80186148 A 19800910

Cited Patents: DE 1237435; DE 362284; US 2412397; US 3048121; US 3518033; US 3685697; US 4121584; US 4199307; US 2017974; US 3359910; US 3391644; US 3423939; US 3428042; US 3704080; US 3811800; US 4039269; US 4101057

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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WO 8001934	A	E			
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Designated States (National): BR JP

Designated States (Regional): CH DE FR GB SE

EP 24431	A	E			
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Designated States (Regional): CH DE FR GB SE

EP 90440	A	E			
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Designated States (Regional): CH DE FR GB SE

EP 24431	B	E			
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Designated States (Regional): CH DE FR GB SE

EP 90440	B	E			
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Designated States (Regional): CH DE FR GB SE

Abstract (Basic): WO 8001934 A

The volumetric infusion pump has two pumping chambers each with a piston a diaphragm between the cylinder and piston and inlet and outlet. Each piston reciprocates to vary the volume of their respective cylinders.

A valve controls fluid from the pumps inlet to the inlet of the first cylinder. A second valve controls flow between the first cylinders outlet and the second cylinders inlet. A drive causes motion of the first cylinder and piston and relative motion of the second cylinder and piston A control operates in the valve so that one is closed at all times.

Title Terms: NON; PULSATE; PUMP; INTRAVENOUS; FEED; EMPLOY; MOTOR; DRIVE;
VALVE; TWO; FLEXIBLE; DIAPHRAGM; PUMP; PRESSURE; EQUAL; FLOW

Derwent Class: P34; Q56

International Patent Class (Additional): A61M-001/00; A61M-005/00;

F04B-021/00; F04B-043/08

File Segment: EngPI

?e pn=jp 57177762

Ref Items Index-term

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